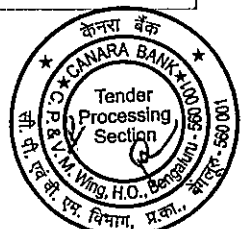




Corrigendum-3 to GeM Bid ref. no GEM/2024/B/5538001 dated 23/10/2024 for Supply, Installation, Configuration, Implementation and Maintenance of 40 nos. of servers and related IT infra components for Data Lakehouse and existing Analytical Setup in Canara Bank with three years comprehensive warranty and two years AMC.

It is decided to amend the following in respect of the above RFP:

Sl. No	Section/Annexure/Appendix of GeM Bid	Clause No.	Existing Clause	Amended Clause
1.	Section C - Deliverable and Service Level Agreements	1. Project Timelines	Existing Clause	Amended Project Timelines attached to this Corrigendum.
2.	Section G - General Conditions	15. Training and Handholding	Existing Clause	Amended Training and Handholding attached to this Corrigendum.
3.	Annexure-2 Pre-Qualification Criteria	Sl.No.6	<p>Pre-Qualification Criteria: The bidder should have a minimum annual average turnover of 50 Crores in India for the last three financial years 2021-2022, 2022-2023, 2023-2024 from their Indian operation as per the audited Financial Statements. This must be the individual company turnover and not of any group of companies.</p> <p>Documents to be submitted In compliance with Pre-Qualification Criteria: Bidder should submit Audited Balance Sheet copies for last 3 financial years i.e., 2021-22, 2022-23 &amp; 2023-24 along with certificate from the Company's Chartered Accountant to this effect with Unique Document Identification Number.</p>	<p>Pre-Qualification Criteria: The bidder should have a minimum annual <u>average turnover of 15 Crores</u> in India for the last three financial years 2021-2022, 2022-2023, 2023-2024 from their Indian operation as per the audited Financial Statements. This must be the individual company turnover and not of any group of companies.</p> <p>Documents to be submitted In compliance with Pre-Qualification Criteria: Bidder should submit Audited Balance Sheet copies for last 3 financial years i.e., 2021-22, 2022-23 &amp; 2023-24 along with certificate from the Company's Chartered Accountant to this effect with Unique Document Identification Number.</p>





4.	Annexure-2 Pre- Qualification Criteria	Sl.No.8	<p>Pre-Qualification Criteria: The bidder should have successfully supplied proposed OEM Hardware cumulative of 40 servers deployed at Customer's DC/ DR in Indian Market in any of the Scheduled Commercial Bank/ Central Government Organization in India in the last calendar year as on the date of submission of bid for this RFP.</p> <p>Documents to be submitted In compliance with Pre-Qualification Criteria: Copy of the purchase order/ Work order along with Satisfactory performance letter/ Certificate of completion of the work and Installation Report. The Bidder should also furnish letter from the institution quoting the period and nature of services provided.</p>	<p>Pre-Qualification Criteria: The Bidder/OEM should have successfully supplied minimum 40 number of servers at Customer's DC/ DR in Indian Market in any of the Scheduled Commercial Bank/ Central Government Organization in India in the last calendar year as on the date of submission of bid for this RFP.</p> <p>Documents to be submitted In compliance with Pre-Qualification Criteria: Copy of the purchase order/ Work order along with Satisfactory performance letter/ Certificate of completion of the work and Installation Report. The Bidder should also furnish letter from the institution quoting the period and nature of services provided.</p>
5.	Annexure-8 Scope of Work	Full Annexure	Existing Annexure	Amended Annexure-8 Scope of Work attached to this Corrigendum.
6.	Annexure-9 Technical Specifications	Full Annexure	Existing Annexure	Amended Annexure-9 Technical Specifications attached to this Corrigendum.
7.	Annexure-16 Bill of Material	Full Annexure	Existing Annexure	Amended Annexure-16 Bill of Material attached to this Corrigendum.

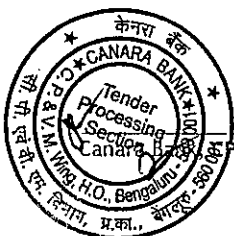
All the other instructions and terms & conditions of the above RFP shall remain unchanged.

Please take note of the above amendments while submitting your response to the subject RFP

Date: 20/11/2024

Place: Bengaluru

Deputy General Manager



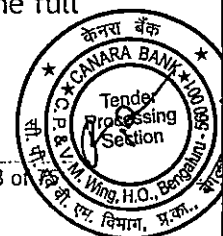
**SECTION C - DELIVERABLE AND SERVICE LEVEL AGREEMENTS**

**1. Project Timelines**

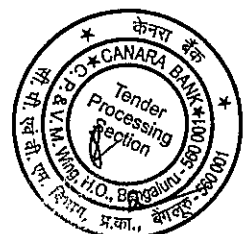
- 1.1. The Bidder should accept the Purchase Order within seven (7) days from the date of issuance of Purchase Order. In case of non-receipt of acceptance by the due date, the Purchase Order shall deem to have been accepted by the vendor.
- 1.2. The Bidder should accept the Purchase Order within seven (7) days from the date of issuance of Purchase Order. In case of non-receipt of acceptance by the due date, the Purchase Order shall deem to have been accepted by the vendor.
- 1.3. Bank shall provide the address and contact details for delivery of required Hardware/software & other items as mentioned in Technical Specifications (Details provided elsewhere in the document) while placing the order.
- 1.4. The timelines are mention in the below table. It will be the sole responsibility of the vendor to submit any form required for release of shipment from the check post.

Sl. No.	Activity	Timelines from date of Acceptance of PO	Cumulative from the date of acceptance of PO
1	Delivery of all Hardware and software along with licenses.	Within 4 weeks from date of Acceptance of PO.	4 weeks
2	Installation of all Hardware, Configuration, implementation and completion of all scope of work.	Within 6 weeks from the date of delivery of hardware.	10 Weeks

- 1.5. The Bidder shall ensure that the Renewal of Licenses/ Subscriptions/ Fees /AMC/ATS/ Support contracts as applicable, during the period of Contract is completed before expiry date of respective components and the renewal process should be initiated at least 6 months prior to the date of expiry.
- 1.6. Bank reserves the right to change/modify locations for supply of the items. In the event of any change/modification in the locations where the hardware items are to be delivered, the bidder in such cases shall Supply, Installation, Configuration, Implementation and Maintenance at the modified locations at no extra cost to the Bank. However, if the hardware items are already delivered, and if the modifications in locations are made after delivery, the bidder shall carry out Installation, Configuration, Implementation and Maintenance at the modified locations and the Bank in such cases shall bear the shifting charges/arrange shifting as mutually agreed. The Warranty/ATS/AMC and all RFP terms should be applicable to the altered locations also as per the Bank's requirement without any extra cost to the Bank during the full contract period.



- 1.7. The Installation will be deemed as incomplete if any component of the hardware/Software is not delivered or is delivered but not installed and / or not operational or not acceptable to the Bank after acceptance testing/ examination. In such an event, the supply and installation will be termed as incomplete and system(s) will not be accepted and the warranty period will not commence. The installation will be accepted only after complete commissioning of hardware.
- 1.8. Commissioning of the hardware and software will be deemed as complete only when the same is accepted by the Bank in accordance with the Terms & Conditions of this Tender.
- 1.9. If undue delay happens for delivery and / or installation of the ordered hardware/Software by the vendor, the same shall be treated as a breach of contract. In such case, the Bank may invoke the Performance Security/Forfeit the Security Deposit without any notice to the bidder.
- 1.10. The Bank will not arrange for any Road Permit / Sales Tax clearance for delivery of hardware to different locations and the selected bidder is required to make the arrangements for delivery of hardware to the locations as per the list of locations /items provided from time to time by the Bank. However, the Bank will provide letters / certificate / authority to the selected bidder, if required.
- 1.11. Partial or incomplete or damaged delivery of materials will not be considered as delivered of all the ordered materials. Date of delivery shall be treated as date of last material delivered to the ordered locations if materials are not damaged. In case materials are delivered with damage, Date of delivery shall be treated as date of replacement of damaged material with new one. Delivery payment shall be paid against completion of delivery of all the ordered materials without any damage and proof of delivery duly certified by Bank's Officials, along with delivery payment claim letter.

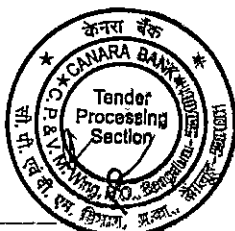




## SECTION G - GENERAL CONDITIONS

## 15. Training and Handholding

- 15.1. Successful bidder shall provide necessary knowledge transfer and transition support to the satisfaction of the Bank.
- 15.2. Assisting the new Service Provider/Bank with the complete audit of the system including licenses and physical assets
- 15.3. Detailed walk-throughs and demos for the Hardware.
- 15.4. During the exit management period, the Vendor/Service Provider shall use its best efforts to deliver the services.
- 15.5. Successful bidder shall hold technical knowledge transfer sessions with designated technical team of Business and/or any replacement Service Provider in at least last three (3) months of the project duration or as decided by Bank.
- 15.6. During Reverse Transition Bank will not pay any additional cost to the Vendor/Service Provider for doing reverse transition.



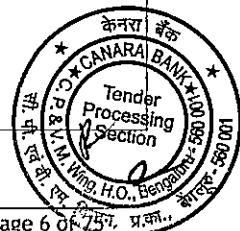
Annexure-8  
Scope of Work

(Should be submitted on Company's letter head with company seal and signature of the authorized person)

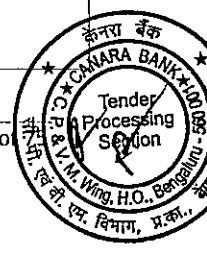
SUB: Supply, Installation, Configuration, Implementation and Maintenance of 40 nos. of servers and related IT infra components for Data Lakehouse and existing Analytical Setup in Canara Bank

Ref: GEM/2024/B/5538001 dated 23/10/2024

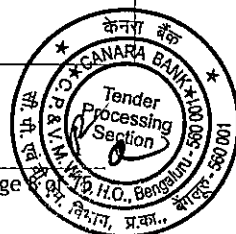
Sl. No.	Evaluation for Scope of Work for this project	Compliance
		(Yes/No)
1.	The scope of the Services and Maintenance is to be provided for a period of Five years from the date of acceptance by the bank (i.e. 3 years warranty and 2 years ATS/AMC).	
2.	All necessary entitlements e.g. paper licenses/Key etc. for both hardware and software should be provided to the Bank.	
3.	The proposed bidder will need to ensure support of product & change of components @ zero cost in case of any part becoming obsolete/EOL & EOS during the warranty and AMC period	
4.	The bidder has to provide AMC/ATS for the all supplied Hardware and Software as per the Scope of Work post warranty period. During the warranty period and AMC period, the Bidder is bound to do all hardware spares replacement and update of proposed software/firmware/driver to next or required version without extra cost to the Bank covering all parts & labour from the date of acceptance of the systems by the Bank at the respective locations i.e. on-site comprehensive warranty. The Bank, however, reserves the right to enter into Annual Maintenance Contract (AMC) agreement either location-wise or from a single centralized location.	
5.	All supplied Hardware should have redundant Power Supply and necessary cables and Rack mounting Kit.	
6.	The warranty for the proposed hardware will start from the date of project acceptance & Signoff, as mentioned in the Scope of Work for the specific hardware	
7.	Bidder has to coordinate with Bank System Integrator while implementing the solution and during any point of time when ever issue is raised by the Bank.	



8.	Bidder should keep the Bank explicitly informed about the end of support dates on related products/ hardware and should ensure support during warranty & AMC period.	
9.	The Bidder should note that servers and other items being procured shall be delivered at locations as per requirements of the Bank.	
10.	The Configuration as per the technical and other specifications offered of all equipment & other items must be functional and installed from the day one.	
11.	All necessary cables and other accessories required for successful installation of the hardware items as per the scope of work to be supplied by the Bidder and the cost of the same to be added along with the respective Hardware items while quoting.	
12.	Bidder should follow a standard development process to ensure that proposed servers meets functional, security performance and regulatory requirements of the bank.	
13.	Bidder should comply as per the IT related policies of the bank.	
14.	Bidder is responsible in installing the Hardware, Software and other items as per Technical Specifications and Scope of work in the bank environment. And as per the bank secure configuration documents	
15.	Bidder must generate and provide a complete holistic report before handover to ensure 100% serviceability of delivered hardware.	
16.	Bidder is responsible for collection of logs and submission of the logs for further analysis and providing the solution to resolve any hardware incidents.	
17.	Bidder must engage Bidder professional team/services onsite to implement/install Hardware, Software & other items.	
18.	Bidder is responsible to inform if any new stable version/update/Service pack/firmware/code upgrade/upgrade of proposed hardware is available by OEM, to the bank within seven days (7 days) of the release and provide the upgrade solution (software) within one month of such releases without any cost to the bank during the period of contract.	
19.	If any more additional licenses are procured by the bank through the successful bidder all such licenses are to be maintained by the bidder.	



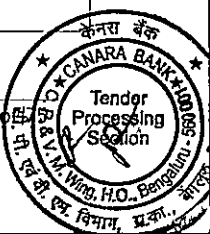
20.	Bidder has to provide the escalation matrix to escalate any incident.	
21.	Bidder is responsible to provide the periodic reports of the proposed hardware health as per the bank requirement.	
22.	All installed hardware firmware must be of stable version and all recommended patches should be installed by the bidder and the same to be submitted to the bank on quarterly basis.	
23.	Bidder shall conduct preventive maintenance as may be necessary from time to time to ensure that equipment is in efficient running condition so as to ensure trouble free functioning.	
24.	All the connectivity for the hardware i.e. LAN/SAN switches need to be ensured by the bidder.	
25.	All proposed equipment's are required to connect existing Ethernet/LAN infrastructure.	
26.	The proposed hardware should be free from any kind of vulnerabilities.	
27.	Bidder should keep the bank explicitly informed the end of support dates on the related products/Hardware and should ensure a support during the warranty and AMC period.	
28.	Bidder must also provide the necessary power cables, LAN cables, FC cables from source to their provided rack as per the guideline of the Bank.	
29.	The Selected Bidder has to coordinate with existing vendor for the Ethernet cable laying and connectivity to the Proposed Hardware and Software.	
30.	Bidder support should include advice and help the bank in implementing controls for the risk advised by regulators/Govt. of India.	
31.	For delivery location, the Bidder has to provide items with the related hardware, all subsystems, operating systems, system software, software drivers and manuals etc.	
32.	The Bidder should note that Servers & Other Items being procured shall be delivered at locations as per requirements of bank and the Bidder will be required to support all such installations. The Bank reserves the right to change location by giving prior notice.	







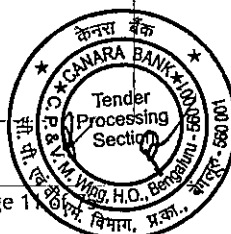
33.	The Hardware and Software installation and configuration for the entire set up to be handled by the qualified/experienced personnel only.	
34.	During installation if the bank requires any new Software/OS/Utility, Bidder has to install without any cost where the licenses of the software are with the Bank.	
35.	The Bidder shall conform the integrity of the software supplied i.e. the software is free from bugs, malware, covert channels in code etc.	
36.	Bank will not provide any remote session like Team Viewer, WebEx etc. for any kind of installation, bug fixing, update and upgrade in entire project tenure.	
37.	The bidder should provide email, telephonic and onsite support.	
38.	The proposed server network interfaces ports should be compatible with the network switches provided in this part of RFP	
39.	All hardware delivered to be rack mounted, powered on and configured properly including server rack with PDU, TOR Switch etc., supplied as part of this RFP.	
40.	Bidder to carry out Internal structured cabling both Copper (CAT 6/CAT 7 and Fibre(OM4) for devices supplied by successful bidder, with sufficient redundancy where  ever applicable/required within server racks, network racks/switches .	
41.	Bidder to carry out the internal cabling/laying only through a certified vendor and to share the test report to Bank for acceptance. All the cables to be properly labelled, tagged and colour coded as per industry standards. Cable laying, labelling and dressing will be done by bidder without any additional cost to Bank.	
42.	Structured Cabling to be used from OEM's like Amp/CommScope SYSTIMAX/ Panduit.	
43.	The Bidder will responsible for the following:	
A	Delivery of proposed hardware to Bank locations specified in BID.	
B	Safely Unpacking of shipped boxes at staging area.	



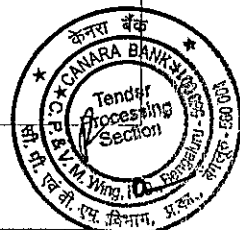
केनरा बँक  
CANARA BANK  
Tender Processing Section  
26.11.2011  
प. प्र. की. ए. विभाग, प्र.क्र.  
आ.प्र. 560/001



	7.X/8.x or later and Microsoft Hypervisor 2019 or later and Open source KVM compatibility should be available.	
5	Hardening of the servers as per the bank secure configuration document based on the OS, Hypervisor and hardware flavours	
Sl. No.	Evaluation for Scope of Work for Open Source KVM/Hypervisor	Compliance (Yes/No)
1	Implementing a KVM environment(Type2) using open source with clustering or load balancing for deploying applications, if required.	
2	Installation of Linux and Windows Server operating systems	
4	Configuring KVM settings such as memory, CPU, networking, and storage, if required	
5	Setting up virtual switches and network adapters.	
11	Creation of virtual machines as per bank Requirements	
12	Installation and configuration of operating systems within virtual machines.	
13	Installation of necessary software	
14	Configuration of network settings within virtual machines.	
15	Install and configure as per bank secure configuration document	
16	Implementation of security best practices for KVM environments.	
17	Configuration of alerts for critical events or performance thresholds.	
18	Creation of documentation for installation, configuration, and maintenance procedures.	
19	Comprehensive testing of all components, including failover and load balancing scenarios.	
Sl. No.	Evaluation for Scope of Work for TOR Switches	Compliance (Yes/No)
1	Bidder has to supply, install, commission, integrate, implement, manage and maintain the Switches along with required license for a period of 5 years (warranty and AMC included) at Bank DC and DRC.	

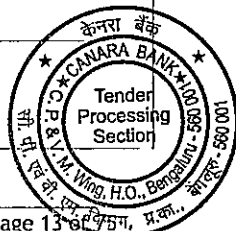


2	Bidder has to take Back-to-Back OEM support for all Hardware/Appliance, software, licenses etc.	
3	Bidder should ensure planning and designing for proposed solution.	
4	Bidder should ensure that proposed solution should work for Data, Voice and Video	
5	Bidder should adopt best practices to implement the solution and should ensure that there should not be any degradation in performance of any application due to implementation of proposed solution. If there is any degradation of performance, Bidder should replace/Upgrade the required hardware without any additional cost to Bank.	
6	Bidder should carry out all the configuration changes as per the proposal with minimum downtime.	
7	Bidder should carry out required switching in the proposed solution	
8	Bidder should deliver all equipment with latest IOS/Patches etc.	
9	Bidder should ensure use the IP address provided by Bank for any of the host without network architectural changes at DC and DRC	
10	Bidder should ensure that solution is interoperable with different OEMs for Open standard technology Deployment	
11	Bidder should ensure that proposed solution work for alternate service provider in Load balancing/Load sharing/Auto fall back in the LAN	
12	Bidder has to act as a single point of contact for the execution of the project. Initiate project kick-off meeting between their Solution Architect and Bank Project Manager. Develop project plan and track the progress against the project plan. Manage project resources, risks and issues as per project plan. Conduct regular progress meeting with Customers Project Manager	
13	Bidder has to Plan, Design considering various failovers scenarios, Integrate with existing and future infrastructure, Implement day to day changes, maintain and coordinate with OEM at Bank Data Centre and at Data Recovery Centre.	
14	Design includes low & high level diagrams, planning of the implementation and should be aimed at ensuring that a new network or service meets the needs of the Bank.	

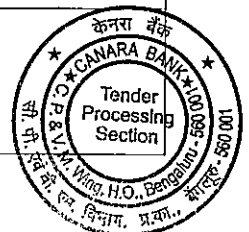




15	Bidder should ensure and demonstrate failover scenarios at DC and to ensure Disaster recovery Plan for Business Continuity.	
16	Bidder should ensure high resilience, scalability, high security, and high availability without any single point of failure.	
17	The above mentioned HA should take care of Hardware/Software/Device/Power/Interface failure.	
18	Bidder to submit Migration plan, implementation document, solution architecture, traffic flow, cabling diagram etc.	
19	Bidder should advise and help Bank in optimizing network security, implementing security control for the risk advised by regulators, Govt. of India etc. for Provided Hardware and Software.	
20	Bidder should ensure there should be 24x7x365 TAC Support from direct OEM for any technical issue with Committed Response time to Severity-1 issues should be less than equal to 30 minutes from OEM.	
21	The Bidder should ensure RMA Shipment should be within four hours after confirmation from OEM TAC.	
22	Bidder to assign IP address and host name to all the proposed switches.	
23	Bidder to set modes of port (Duplex, Half Duplex, Auto) and assign them to the VLANs as per the implementation plan document.	
24	Bidder to Configure the Security hardening like ACL, AAA, NTP, SNMP, Net flow & Logging etc.	
25	Bidder to configure the device to integrate with SIEM, NBA etc.	
26	Bidder to configure uplink from Spine switch to Firewall with redundant 10/25/40/100Gbps links if required.	
27	Bidder to ensure all the Access switches must be connected to Distribution/Core Switch with redundant 25/40/100 Gbps Uplink.	
28	Bidder to Create the L2 VLAN on the switch wherever required.	
29	Bidder to configure high availability features such as power supply redundancy, fabric engine redundancy etc.	
30	Bidder to Install the proposed transceivers in to router and switches and connect the uplink cables. (25G/40G )	



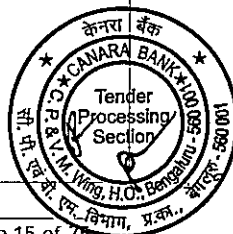
31	Bidder to assign the VLAN/Trunk on the respective interface connecting to Server form switch.	
32	Bidder to configure the required user/Server/Switch interface with respective VLANs.	
33	The equipment provided by Bidder should not reach End of Life or End of Support date by the OEM within the contract period. In the event of the supplied equipment reaching as EOL or EOS within the period of 5 years from the date of commissioning of the equipment, Bidder has to replace the equipment with equipment having equivalent or higher configurations. Bidder should keep the Bank explicitly informed about the end of support dates on related products/License/hardware/Software and should ensure support during contract period.	
34	Bidder to design & plan IP/network schema with the Bank team for the proposed architecture.	
35	Install the proposed switches in the Rack and do the Power on Self-Test.	
36	Bidder should ensure Mounting, Installation, commissioning should be done without impacting Bank exiting Network setup	
37	Bidder to take the configuration backup for all Switches.	
38	All the equipment must support on dual stack IPv4 plus IPv6.	
39	Bidder to Perform and document ping or connectivity tests to demonstrate the correct installation of the Router and Switches, validate the configuration and share the report of ping test and port configuration, high availability features etc.	
40	Bidder should deliver Final Connectivity Document, Configuration Document, Inventory documents, Acceptance test documents, Training attendance sheets and feedback forms.	
41	Bidder has to ensure proposed switches support with 802.1X proxies, NAC solutions, and any other source of user identity information.	
42	Bidder should ensure that during various phases of implementation, the performance, security, etc. of the existing network/Security setup is not compromised.	
43	Bidder has to provide equipment & peripherals with rack mounting kit to accommodate all components in the rack space provided in the Bank's Data centres.	



44	All necessary entitlements e.g. paper licenses/Key etc. for both hardware and software should be provided to the Bank.	
46	Bidder should Upgrade/Provide/inform Bank about all release /version change of patches/ upgrades/updates of Hardware/software/OS/signatures product development path, etc. of the proposed solution as and when released by the OEM. Wherever required, Bank may seek help/support from the System Integrator.	
47	Bidder has to own the responsibility of making the solution run as desired by the Bank.	
48	Bidder must provide detailed SOP, troubleshooting steps of the provided solution along with the Installation and Administration guide for reference, which must include High level Design (HLD) and Low Level Design (LLD) documents at no extra cost to the Bank.	
49	Bidder should ensure all devices should have redundant power supply and network connectivity is dual homed.	
50	Bidder should support and integrate Switches as per Bank's network architecture requirements.	

## Managed Services

Resource Type	Minimum Resources	Educational Qualification, Knowledge & Experience and Certification (if applicable)	Minimum Years of Experience
L2 Resource (Infra and platform Administration)	1	<p><b>Educational Qualification</b></p> <p>Diploma/Degree</p> <p><b>Experience and knowledge</b></p> <p>Maintenance, Monitoring, Administration, and Management of Software and Hardware; All System Administration tasks w.r.t</p> <p>Linux Systems of all versions, Configuration management of</p> <p>Linux, Patch managements Hardening and secure hardening and fixing vulnerable observations, Driving the</p>	5 years in Linux administration





		<p>assigned project. Experience in implementing security, improvements by assessing current situation, any other work entrusted by the Bank from time to time, Knowledge in shell scripting, python and automations of IT jobs, DR switch over experiences, OS Cluster Configuration, <u>Secure</u> Configuration hardening, Inventory management, License management, release management, DC and DR syncing, LDAP, NTP, SIEM, PIM integrations and Backup verification(OS/Application).</p> <p>Understanding/experience on below services/modules.</p> <ul style="list-style-type: none"> <li>➤ SMB (samba),</li> <li>➤ SSL (including Self-Signed Certs)</li> <li>➤ Docker/Containers (Kubernetes)</li> <li>➤ Switches (Ethernet /SAN).</li> <li>➤ Handling Open source KVM.</li> <li>➤ VM creation and Maintenance using KVM</li> <li>➤ Python scripting</li> <li>➤ Shell scripting</li> <li>➤ Middleware (Apache/WebLogic)</li> <li>➤ Knowledge on Open source DevOps</li> <li>➤ Storage Management(LVM)</li> </ul> <p>Certification (Minimum one)</p> <p>RHCE</p>	
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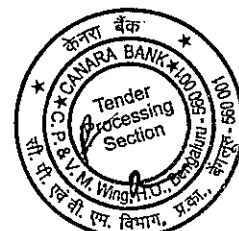
We comply with the above Scope of Work, Non-compliance to any of the scope of work will lead to disqualification of the bidder in Technical proposal.

Date:

Signature with seal

Name:

Designation :





Annexure-9Technical Specifications

(Should be submitted on Company's letter head with company seal and signature of the authorized person)

SUB: Supply, Installation, Configuration, Implementation and Maintenance of 40 nos. of servers and related it infra components for Data Lakehouse and existing Analytical Setup in Canara Bank.

Ref: GEM/2024/B/5538001 dated 23/10/2024.

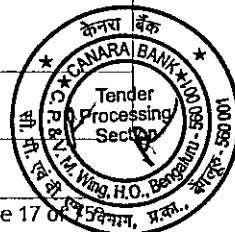
Note:	
(a)	If the bidder feels that certain features offered are superior to what has been specified by the Bank, it shall be highlighted separately. Information regarding any modification required in the proposed solution to meet the intent of the specifications and state-of-the-art technology shall be provided. However, the Bank reserves the right to adopt the modifications /superior features suggested/ offered.
(b)	The bidder shall provide all other required equipment's and/or services, whether or not explicitly mentioned in this RFP, to ensure the intent of specification, completeness, operability, maintainability and upgradability.
(c)	The selected bidder shall own the responsibility to demonstrate that the product offered are as per the specification/performance stipulated in this RFP and as committed by the bidder either at site or in bidder's work site without any extra cost to the Bank.

All points mentioned under are mandatory to comply and non-compliance to any of the point lead to disqualification of the bidder during evaluation.

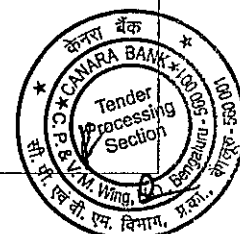
Technical Specifications for 40 servers (20 DC and 20 DRC)Table-A

## Technical Specification - 12 servers (6 DC and 6 DRC)

Technical Details		Technical Specification - 12 Data Fabric ( 6 DC and 6 DR)	Bidder's Compliance (Yes/No)
Sl. No.	Technical Factor	Description	
1	Make	Bidder to specify	

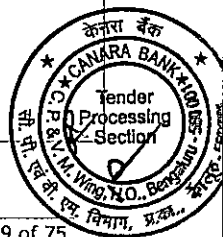


2	Model	Bidder to specify	
3	Power Factor	Bidder to specify	
4	Form Factor	2U	
5	<b>Processor</b>		
	Processor Architecture	CISC	
	Processor Make	Latest generation x86_64 bit architecture-based CPU's	
	Processor	2.8GHz (gigahertz) or above	
	Socket	Minimum 2 populated sockets i.e., 16*2 =32 core	
	Cores per socket	16	
	Cache	35 MB L3 Cache or higher per socket	
	Cooling	Heat Sink	
	Platform Controller Hub & Main Board	Latest Chipset / System on Chip (SoC) design. Supporting x86_64 & Suitable server class Main Board or equivalent	
6	<b>Memory</b>		
	RAM Type	DDR5 DIMM or Higher	
	Ram Size	128GB x 4 = 512 GB or 64 GB x 8 = 512 GB	
	Slot Count	Minimum 24 or higher, Minimum 8 free memory slots should be available.	
	Speed	Minimum 5200 MT/s (Megatransfer per second) or higher (memory speed should be compatible with process speed to provide better performance)	



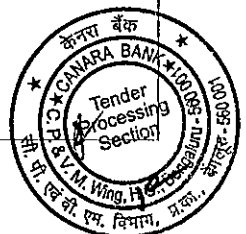


	Features	Advanced ECC (Error Correcting Code) type or similar technology	
7	SSD		
	Types of interface for SSD	SAS/NVMe	
	Total Capacity for SSD	2 x960 GB for OS; (to support RAID 1) 12 x7.68 TB for data ( Raw)	
	Slot Count	16 or higher, Minimum 2 free slots should be available for future upgrade	
	Raw Space	Minimum 90+ TB approx. (Raw Disk Storage) 12 x7.68 TB for data 2 x960 GB for OS	
8	RAID Controller		
	RAID Controller	Should support RAID 1, 5, 6, 10 or higher	
	RAID Battery	RAID 1, 5, 6, 10 or higher with 4GB or higher battery backed write cache	
	Alarm Buzzer	Alarm Buzzer or error indication alerts or equivalent	
	Storage Health Inspector	Storage Health Inspector or tools to monitor Storage/disk health	
	Features	Automatic and configurable RAID Rebuilding / Single-RAID or Multi-RAID Arrays per Controller	



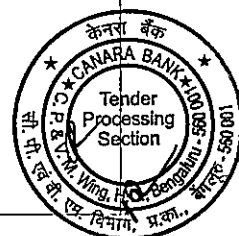


9	SAN & Network		
	FC HBA CARD	Two FC Card with 2 number of 32 Gbps FC ports in each card with Supported SFP+ transceivers ( With NVME Capable )	
	FC Cables	4 Nos of minimum 15 Meter OM3/OM4 FC cables or higher for SAN Connectivity (FC HBA & transceivers should Support 16 Gbps & 32Gbps Switch)	
	Network cards with port 1 Gbps	Two Network Cards, each equipped with at least Four 1-gigabit network ports (Four Port of 1Gbase-T On-Board or separate NIC with supported four number of minimum 5 meter of compatible Cat6/Cat7 UTP Cable)	
	Network cards with 25 Gbps ports	Two Network Cards, each equipped with at least two 25-gigabit Fiber network ports (Total Four 25Gbps ports with four number of minimum 5 meter FC Cable)	
	Network cards Management port	Dedicate One Port of 1GBps-management port chassis Card with minimum 5 meter Cat6/Cat7 UTP Cable.	
10	OS & Hypervisor Compatibility		
	Virtualization compatibility	All latest version of Microsoft-HyperV, VMware, Red Hat virtualization, Oracle virtualization, Open shift virtualization and other industry standard	



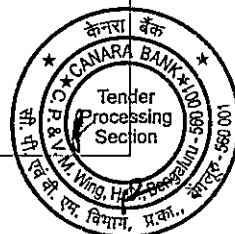


		hypervisors, Open Shift, Kubernetes	
	Open Source compatibility	Open Source Linux KVM	
	Windows Compatibility	2019/2022	
	RHEL Compatibility	8.x & 9.x & Higher versions	
	Other Latest Linux Flavors	Latest server operating versions of SUSE Linux, Oracle Linux, Ubuntu ,RHCOS	
11	Power Supply	Redundant hot swappable power supply, with required power cables	
12	BIOS	UEFI (Unified Extensible Firmware Interface) based system and firmware that supports secure boot)	
13	Warranty And Support	3 Years onsite warranty+ 2 years AMC, On-Site Support Warranty including part replacement/repairs within 6 hours of reporting, and Software support for updates, upgrades, patches, and bug fixes for supplied s/w from OEM 24 x 7 x 365 days. SSD drives should be covered for irrespective of read/writes on them. In case of Disk failure, the faulty disk will be maintained /destroyed / Degauss by Canara Bank. Proactive storage monitoring & support from OEM should be enabled. The proposed bidder will need to ensure support of product & change of components @ zero cost in	



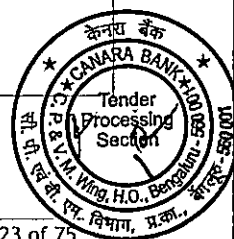


		case of any part becoming obsolete/EOL & EOS. Faulty Disks would not be returned back to OEM/Vendor or faulty disks will be destroyed before returning.	
14	Port	1 USB 3.0 port or higher, 2 USB 2.0 port or higher and 1 VGA Port or higher	
15	Serviceability	Light path diagnostic LED or equivalent visual alerts	
16	Security	Silicon root of trust, authenticated BIOS, Signed firmware updates and BIOS Live scanning for malicious firmware, secure boot, TPM2.0 (Trusted Platform Module 2.0), Hardware root of trust, malicious code free design.	
17	PCI Slots	Minimum 8 PCIe Gen4 or higher free slots(Peripheral Component Interconnect Express)	
18	Remote Management	<p>1) Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should be able to integrate with industry wide KVM (Kernel-based Virtual Machine) solution.</p> <p>Monitoring fan, power supply, memory, CPU, RAID, NIC for failures.</p> <p>Telemetry Streaming, Idle Server Detection.</p>	

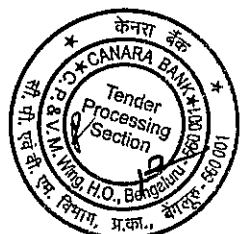




		2) Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP.	
19	System Management Solution	<p>1. The system management solution is required. The system management solution should collect system information (including impending component failure) from the device that generated the alert and sends the information securely to OEM to Support to troubleshoot the issue and provide an appropriate solution.</p> <p>2. The system management solution should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive. It should be capable of offering upgrade of software and patches from a remote client using Media/image/folder; It should support server power capping and historical reporting and should have support for multifactor authentication.</p> <p>3. The system management solution should be provided:</p> <p>a. Firmware and configuration baselines for compliance monitoring and</p>	



		<p>enable automated updates on schedule.</p> <p>b. Scope based access control to limit Users to specific group of devices</p> <p>c. Bare-metal server deployment</p> <p>d. Power and thermal Monitoring, alarm, and automatically execute rules-based remediation.</p> <p>e. Manage remote devices and control power</p>	
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20	Monitoring and Analytics	<p>1.Offered servers shall have monitoring an analytics engine for proactive management. All required licenses for same shall be included in the offer.</p> <p>2.Monitoring and analytics engine shall have the capability to provide the following:</p> <p>i.Health and system security monitoring and notification emails</p> <p>ii.Performance monitoring and anomaly detection</p> <p>iii.REST API for integrating data with automation, ticketing, and other tools</p> <p>iv.Visualize server telemetry including key performance, environmental, and power metrics</p> <p>v.Displays heath, inventory, alerts, performance, and warranty status</p>	
21	Drivers & Accessories	Drivers for the compatible OS, Add on cards and other accessories to be Provided.	
22	FAN	Server should have redundant fully populated Hot swappable fans	

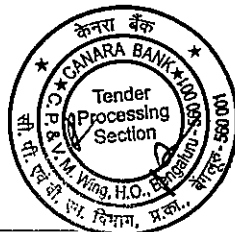
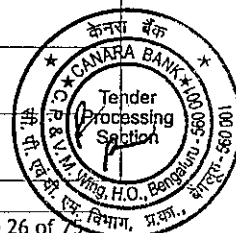


Table-B

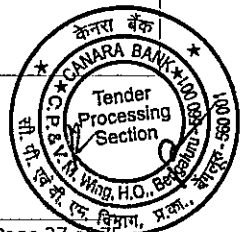
Technical Specification - 8 servers (4 DC and 4 DRC)

Technical Details		Technical Specification 8-ML OPS MASTER and Runtime ( 4 DC and 4 DR)	Bidder's Compliance (Yes/No)
Sl. No.	Technical Factor	Description	
1	Make	Bidder to specify	
2	Model	Bidder to specify	
3	Power Factor	Bidder to specify	
4	Form Factor	2U	
5	Processor		
	Processor Architecture	CISC	
	Processor Make	Latest generation x86_64 bit architecture-based CPU's	
	Processor	2.8GHz(gigahertz) or above	
	Socket	Minimum 2 populated sockets i.e., 24*2 =48 core	
	Cores per socket	24	
	Cache	60 MB L3 Cache or higher	
	Cooling	Heat Sink	
	Platform Controller Hub & Main Board	Latest Chipset / System on Chip (SoC) design. Supporting x86_64 & Suitable server class Main Board or equivalent	
6	Memory		
	RAM Type	DDR5 DIMM or Higher	
	Ram Size	128GB*4(64GB*8) = 512 GB	



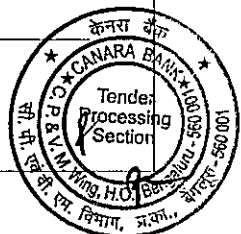


	Slot Count	Minimum 24 or higher, Minimum 8 free memory slots should be available.	
	Speed	Minimum 5200 MT/s (Megatransfer per second) or higher (memory speed should be compatible with process speed to provide better performance)	
	Features	Advanced ECC (Error Correcting Code) type or similar technology	
7	SSD		
	Types of interface for SSD	SAS/NVMe	
	Total Capacity for SSD	2 x 1.92 TB for OS; (to support RAID 1)  6 x 1.92 TB for data (Raw)	
	Slot Count	16 or higher, Minimum 2 free slots should be available for future upgrade	
	Raw Space	Minimum 10+ TB approx. (Raw Disk Storage)  6 x 1.92 TB for data  2 x 1.92 TB for OS	
8	RAID Controller		
	RAID Controller	Should support RAID 1, 5, 6, 10 or higher	
	RAID Battery	RAID 1, 5, 6, 10 or higher with 4GB or higher battery backed write cache	



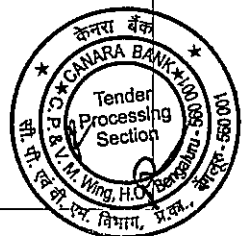


	Alarm Buzzer	Alarm Buzzer or error indication alerts or equivalent	
	Storage Health Inspector	Storage Health Inspector or tools to monitor Storage/disk health	
	Features	Automatic and configurable RAID Rebuilding / Single-RAID or Multi-RAID Arrays per Controller	
9	SAN & Network		
	FC HBA CARD	Two FC Card with 2 number of 32 Gbps FC ports in each card with Supported SFP+ transceivers ( With NVME Capable )	
	FC Cables	4 Nos of minimum 15 Meter OM3/OM4 FC cables or higher for SAN Connectivity (FC HBA & transceivers should Support 16 Gbps & 32Gbps Switch)	
	Network cards with port 1 Gbps	Two Network Cards, each equipped with at least Four 1-gigabit network ports ( Four Port of 1Gbase-T On-Board or separate NIC with supported four number of minimum 5 meter of compatible Cat6/Cat7 UTP Cable )	
	Network cards with 25 Gbps ports	Two Network Cards, each equipped with at least two 25-gigabit Fiber network ports (Total Four 25Gbps ports with four number of minimum 5 meter FC Cable)	
	Network cards Management port	Dedicate One Port of 1GBps-management port chassis	



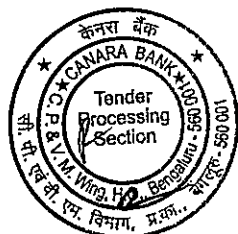


		card with minimum 5 meter Cat6/Cat7 UTP Cable.	
10	OS & Hypervisor Compatibility		
	Virtualization compatibility	All latest version of Microsoft-HyperV, VMware, Red Hat virtualization, Oracle virtualization, Open shift virtualization and other industry standard hypervisors, Open Shift, Kubernetes.	
	Open Source compatibility	Open Source Linux KVM	
	Windows Compatibility	2019/2022	
	RHEL Compatibility	8.x & 9.x & Higher versions	
	Other Latest Linux Flavors	Latest server operating versions of SUSE Linux, Oracle Linux, Ubuntu, RHCOS	
11	Power Supply	Redundant hot swappable power supply, with required power cables	
12	BIOS	UEFI (Unified Extensible Firmware Interface) based system and firmware that supports secure boot)	
13	Warranty And Support	3 Years onsite warranty+ 2 years AMC, On-Site Support Warranty including part replacement/repairs within 6 hours of reporting, and Software support for updates, upgrades, patches, and bug fixes for supplied s/w from OEM 24 x 7 x 365 days. SSD drives should be covered for	



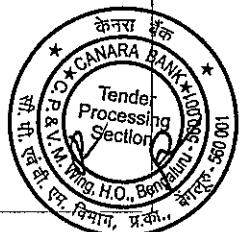


		irrespective of read/writes on them. In case of Disk failure, the faulty disk will be maintained /destroyed / Degauss by Canara Bank. Proactive storage monitoring & support from OEM should be enabled. The proposed bidder will need to ensure support of product & change of components @ zero cost in case of any part becoming obsolete/EOL & EOS. Faulty Disks would not be returned back to OEM/Vendor or faulty disks will be destroyed before returning.	
14	Port	1 USB 3.0 port or higher, 2 USB 2.0 port or higher and 1 VGA Port or higher	
15	Serviceability	Light path diagnostic LED or equivalent visual alerts	
16	Security	Silicon root of trust, authenticated BIOS, Signed firmware updates and BIOS Live scanning for malicious firmware, secure boot, TPM2.0 (Trusted Platform Module 2.0), Hardware root of trust, malicious code free design.	
17	PCI Slots	Minimum 8 PCIe Gen4 or higher free slots(Peripheral Component Interconnect Express)	

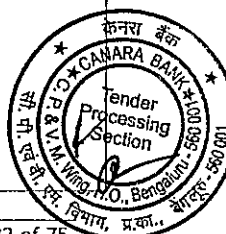




18	Remote Management	<p>1) Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should be able to integrate with industry wide KVM (Kernel-based Virtual Machine) solution.</p> <p>Monitoring fan, power supply, memory, CPU, RAID, NIC for failures.</p> <p>Telemetry Streaming, Idle Server Detection.</p>	
		2) Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP.	
19	System Management Solution	<p>1. The system management solution is required. The system management solution should collect system information (including impending component failure) from the device that generated the alert and sends the information securely to OEM to Support to troubleshoot the issue and provide an appropriate solution.</p> <p>2. The system management solution should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD</p>	



		<p>Drive. It should be capable of offering upgrade of software and patches from a remote client using Media/image/folder; It should support server power capping and historical reporting and should have support for multifactor authentication.</p> <p>3. The system management solution should be provided:</p> <p>a. Firmware and configuration baselines for compliance monitoring and enable automated updates on schedule.</p> <p>b. Scope based access control to limit Users to specific group of devices</p> <p>c. Bare-metal server deployment</p> <p>d. Power and thermal Monitoring, alarm, and automatically execute rules-based remediation.</p> <p>e. Manage remote devices and control power</p>	
20	Monitoring Analytics and	<p>1.Offered servers shall have monitoring an analytics engine for proactive management. All required licenses for same shall be included in the offer.</p> <p>2.Monitoring and analytics engine shall have the capability to provide the following:</p>	





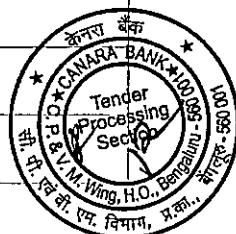


		<p>i. Health and system security monitoring and notification emails</p> <p>ii. Performance monitoring and anomaly detection</p> <p>iii. REST API for integrating data with automation, ticketing, and other tools</p> <p>iv. Visualize server telemetry including key performance, environmental, and power metrics</p> <p>v. Displays health, inventory, alerts, performance, and warranty status</p>	
21	Drivers & Accessories	Drivers for the compatible OS, Add on cards and other accessories to be Provided.	
22	FAN	Server should have redundant fully populated Hot swappable fans	

Table-C

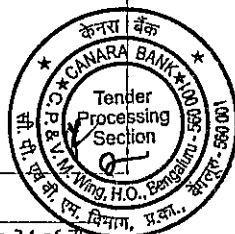
Technical Specification - 2 servers (1 DC and 1 DRC)

Technical Details		Technical Specification 2-ML Worker Nodes- with one GPU per server( 1 DC and 1 DR)	Bidder's Compliance (Yes/No)
Sl. No.	Technical Factor	Description	
1	Make	Bidder to specify	
2	Model	Bidder to specify	



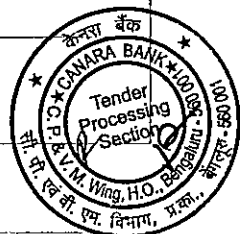


3	Power Factor	Bidder to specify ( consider GPU power factor as well)	
4	Form Factor	2U	
5	Processor		
	Processor Architecture	CISC	
	Processor Make	Latest generation x86_64 bit architecture-based CPU's	
	Processor	2.8GHz (gigahertz) or above	
	Socket	Minimum 2 populated sockets i.e., 24*2 =48 core	
	Cores per socket	24	
	Cache	60 MB L3 Cache or higher	
	Cooling	Heat Sink	
	Platform Controller Hub & Main Board	Latest Chipset / System on Chip (SoC) design. Supporting x86_64 & Suitable server class Main Board or equivalent	
	GPU	<p>One GPU per Server</p> <p>Memory - 94 GB</p> <p>Bandwidth - min 3 TB/s to 4 TB/s or higher</p> <p>L2 Cache - min 50 MB to 100 MB or higher</p> <p>FP64 Performance: min 30 to 40 TFLOPS or higher</p> <p>FP32 Performance: min 60 to 100 TFLOPS or higher</p>	



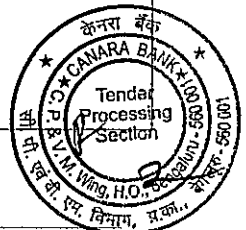


6	Memory		
	RAM Type	DDR5 DIMM or Higher	
	Ram Size	128GB*4(64GB*8) = 512 GB	
	Slot Count	Minimum 24 or higher, Minimum 8 free memory slots should be available.	
	Speed	Minimum 5200 MT/s (Megatransfer per second) or higher (memory speed should be compatible with process speed to provide better performance)	
	Features	Advanced ECC (Error Correcting Code) type or similar technology	
7	SSD		
	Types of interface for SSD	SAS/NVMe	
	Total Capacity for SSD	2 x 960 GB for OS; (to support RAID 1)  4 x 1.92 TB for data (Raw)	
	Slot Count	16 or higher, Minimum 2 free slots should be available for future upgrade	
	Raw Space	Minimum 5+ TB approx. (Raw Disk Storage)  4 x 1.92 TB for data  2 x 960 GB for OS	
8	RAID Controller		
	RAID Controller	Should support RAID 1, 5, 6, 10 or higher	



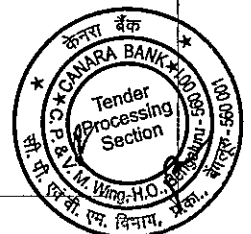


	RAID Battery	RAID 1, 5, 6, 10 or higher with 4GB or higher battery backed write cache	
	Alarm Buzzer	Alarm Buzzer or error indication alerts or equivalent	
	Storage Health Inspector	Storage Health Inspector or tools to monitor Storage/disk health	
	Features	Automatic and configurable RAID Rebuilding / Single-RAID or Multi-RAID Arrays per Controller	
9	SAN & Network		
	FC HBA CARD	Two FC Card with 2 number of 32 Gbps FC ports in each card with Supported SFP+ transceivers ( With NVME Capable )	
	FC Cables	4 Nos of minimum 15 Meter OM3/OM4 FC cables or higher for SAN Connectivity (FC HBA & transceivers should Support 16 Gbps & 32Gbps Switch)	
	Network cards with port 1 Gbps	Two Network Cards, each equipped with at least Four 1-gigabit network ports ( Four Port of 1Gbase-T On-Board or separate NIC with supported four number of minimum 5 meter of compatible Cat6/Cat7 UTP Cable )	
	Network cards with 25 Gbps ports	Two Network Cards, each equipped with at least two 25-gigabit Fiber network ports (Total Four 25Gbps ports with four number of minimum 5 meter FC Cable)	



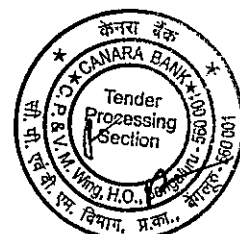


	Network cards Management port	Dedicate One Port of 1Gbps-management port chassis card with minimum 5 meter Cat6/Cat7 UTP Cable.	
10	OS & Hypervisor Compatibility		
	Virtualization compatibility	All latest version of Microsoft-HyperV, VMware, Red Hat virtualization, Oracle virtualization, Open shift virtualization and other industry standard hypervisors, Open Shift, Kubernetes.	
	Open Source compatibility	Open Source Linux KVM	
	Windows Compatibility	2019/2022	
	RHEL Compatibility	8.x & 9.x & Higher versions	
	Other Latest Linux Flavors	Latest server operating versions of SUSE Linux, Oracle Linux, Ubuntu, RHCOS	
11	Power Supply	Redundant hot swappable power supply, with required power cables	
12	BIOS	UEFI (Unified Extensible Firmware Interface) based system and firmware that supports secure boot)	
13	Warranty And Support	3 Years onsite warranty+ 2 years AMC, On-Site Support Warranty including part replacement/repairs within 6 hours of reporting, and Software support for updates, upgrades, patches, and bug fixes for supplied s/w from OEM 24 x 7 x 365 days. SSD drives should be covered for irrespective of read/writes on them. In	





		case of Disk failure, the faulty disk will be maintained /destroyed / Degauss by Canara Bank. Proactive storage monitoring & support from OEM should be enabled. The proposed bidder will need to ensure support of product & change of components @ zero cost in case of any part becoming obsolete/EOL & EOS. Faulty Disks would not be returned back to OEM/Vendor or faulty disks will be destroyed before returning.	
14	Port	1 USB 3.0 port or higher, 2 USB 2.0 port or higher and 1 VGA Port or higher	
15	Serviceability	Light path diagnostic LED or equivalent visual alerts	
16	Security	Silicon root of trust, authenticated BIOS, Signed firmware updates and BIOS Live scanning for malicious firmware, secure boot, TPM2.0 (Trusted Platform Module 2.0), Hardware root of trust, malicious code free design.	
17	PCI Slots	Minimum 8 PCIe Gen4 or higher free slots (Peripheral Component Interconnect Express)	

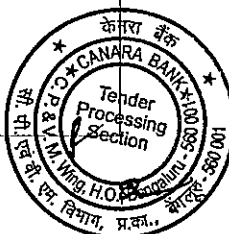




18	Remote Management	<p>1) Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM (Kernel-based Virtual Machine) solution.</p> <p>Monitoring fan, power supply, memory, CPU, RAID, NIC for failures.</p> <p>Telemetry Streaming, Idle Server Detection.</p>	
		2) Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP.	
19	System Management Solution	<p>1. The system management solution is required. The system management solution should collect system information (including impending component failure) from the device that generated the alert and sends the information securely to OEM ✓ to Support to troubleshoot the issue and provide an appropriate solution.</p> <p>2. The system management solution should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive. It should be capable of</p>	



		<p>offering upgrade of software and patches from a remote client using Media/image/folder; It should support server power capping and historical reporting and should have support for multifactor authentication.</p> <p>3. The system management solution should be provided:</p> <ul style="list-style-type: none"> <li>a. Firmware and configuration baselines for compliance monitoring and enable automated updates on schedule.</li> <li>b. Scope based access control to limit Users to specific group of devices</li> <li>c. Bare-metal server deployment</li> <li>d. Power and thermal Monitoring, alarm, and automatically execute rules-based remediation.</li> <li>e. Manage remote devices and control power</li> </ul>	
20	Monitoring Analytics and	<p>1.Offered servers shall have monitoring an analytics engine for proactive management. All required licenses for same shall be included in the offer.</p> <p>2.Monitoring and analytics engine shall have the capability to provide the following:</p>	





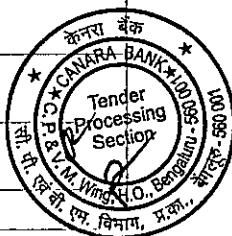


		<p>i.Health and system security monitoring and notification emails</p> <p>ii.Performance monitoring and anomaly detection</p> <p>iii.REST API for integrating data with automation, ticketing, and other tools</p> <p>iv.Visualize server telemetry including key performance, environmental, and power metrics</p> <p>v.Displays health, inventory, alerts, performance, and warranty status</p>	
21	Drivers & Accessories	Drivers for the compatible OS, Add on cards and other accessories to be Provided.	
22	FAN	Server should have redundant fully populated Hot swappable fans	

Table-D

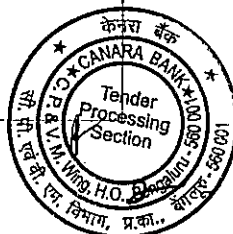
## Technical Specification - 8 servers (4 DC and 4 DRC)

Technical Details		Technical Specification - 8 ML Worker Nodes ( 4 DC and 4 DR)	Bidder's Compliance (Yes/No)
Sl. No.	Technical Factor	Description	
1	Make	Bidder to specify	
2	Model	Bidder to specify	



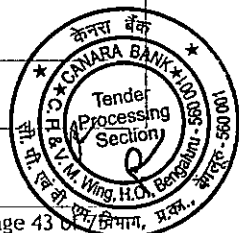


3	Power Factor	Bidder to specify	
4	Form Factor	2U	
5	Processor		
	Processor Architecture	CISC	
	Processor Make	Latest generation x86_64 bit architecture-based CPU's	
	Processor	2.8GHz (gigahertz) or above	
	Socket	Minimum 2 populated sockets i.e., 24*2 =48 core	
	Cores per socket	24	
	Cache	60 MB L3 Cache or higher	
	Cooling	Heat Sink	
	Platform Controller Hub & Main Board	Latest Chipset / System on Chip (SoC) design. Supporting x86_64 & Suitable server class Main Board or equivalent	
6	Memory		
	RAM Type	DDR5 DIMM or Higher	
	Ram Size	128GB*4(64GB*8) = 512 GB or 64 GB x 8 = 512 GB	
	Slot Count	Minimum 24 or higher, Minimum 8 free memory slots should be available.	
	Speed	Minimum 5200 MT/s (Megatransfer per second) or higher (memory speed should be compatible with process speed to provide better performance)	

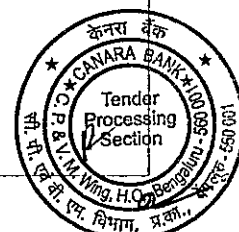




	Features	Advanced ECC (Error Correcting Code) type or similar technology	
7	SSD		
	Types of interface for SSD	SAS*/NVM e	
	Total Capacity for SSD	2 x 960 GB for OS; (to support RAID 1,5,6,10) 2 x 1.92 TB for data ( Raw)	
	Slot Count	16 or higher, Minimum 2 free slots should be available for future upgrade	3
	Raw Space	Minimum 3.5+TB approx. (Raw Disk Storage) - for data 2 x 960 GB for OS in RAID (960GB usable)	
8	RAID Controller		
	RAID Controller	Should support RAID 1, 5, 6, 10 or higher	
	RAID Battery	RAID 1, 5, 6, 10 or higher with 4GB or higher battery backed write cache	
	Alarm Buzzer	Alarm Buzzer or error indication alerts or equivalent	
	Storage Health Inspector	Storage Health Inspector or tools to monitor Storage/disk health	
	Features	Automatic and configurable RAID Rebuilding / Single-RAID or Multi-RAID Arrays per Controller	
9	SAN & Network		

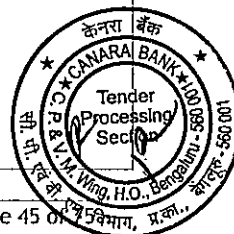


	FC HBA CARD	Two FC Card with 2 number of 32 Gbps FC ports in each card with Supported SFP+ transceivers ( With NVME Capable )	
	FC Cables	4 Nos of minimum 15 Meter OM3/OM4 FC cables or higher for SAN Connectivity (FC HBA & transceivers should Support 16 Gbps & 32Gbps Switch)	
	Network cards with port 1 Gbps	Two Network Cards, each equipped with at least Four 1-gigabit network ports ( Four Port of 1Gbase-T On-Board or separate NIC with supported four number of minimum 5 meter of compatible Cat6/Cat7 UTP Cable )	
	Network cards with 25 Gbps ports	Two Network Cards, each equipped with at least two 25-gigabit Fiber network ports (Total Four 25Gbps ports with four number of minimum 5 meter FC Cable)	
	Network cards Management port	Dedicate One Port of 1Gbps-management port chassis card with minimum 5 meter Cat6/Cat7 UTP Cable.	
10	OS & Hypervisor Compatibility		
	Virtualization compatibility	All latest version of Microsoft-HyperV, VMware, Red Hat virtualization, oracle virtualization, Open shift virtualization and other industry standard hypervisors, Open Shift, Kubernetes.	



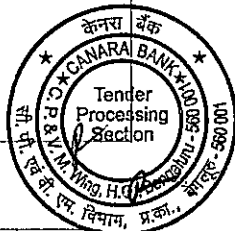


	Open Source compatibility	Open Source Linux KVM	
	Windows Compatibility	2019/2022	
	RHEL Compatibility	8.x & 9.x & Higher versions	
	Other Latest Linux Flavours	Latest server operating versions of SUSE Linux, Oracle Linux, Ubuntu ,RHCOS	
11	Power Supply	Redundant hot swappable power supply, with required power cables	
12	BIOS	UEFI (Unified Extensible Firmware Interface) based system and firmware that supports secure boot)	
13	Warranty And Support	3 Years onsite warranty+ 2 years AMC, On-Site Support Warranty including part replacement/repairs within 6 hours of reporting, and Software support for updates, upgrades, patches, and bug fixes for supplied s/w from OEM 24 x 7 x 365 days. SSD drives should be covered for irrespective of read/writes on them. In case of Disk failure, the faulty disk will be maintained /destroyed / Degauss by Canara Bank. Proactive storage monitoring & support from OEM should be enabled. The proposed bidder will need to ensure support of product & change of components @ zero cost in case of any part becoming obsolete/EOL & EOS. Faulty Disks would not be retuned	



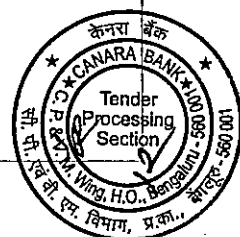


		back to OEM/Vendor or faulty disks will be destroyed before returning.	
14	Port	1 USB 3.0 port or higher, 2 USB 2.0 port or higher and 1 VGA Port or higher	
15	Serviceability	Light path diagnostic LED or equivalent visual alerts	
16	Security	Silicon root of trust, authenticated BIOS, Signed firmware updates and BIOS Live scanning for malicious firmware, secure boot, TPM2.0 (Trusted Platform Module 2.0), Hardware root of trust, malicious code free design.	
17	PCI Slots	Minimum 8 PCIe Gen4 or higher free slots(Peripheral Component Interconnect Express)	
18	Remote Management	<p>1) Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management</p> <p>ports. Should able to integrate with industry wide KVM (Kernel-based Virtual Machine) solution.</p> <p>Monitoring fan, power supply, memory, CPU, RAID, NIC for failures.</p> <p>Telemetry Streaming, Idle Server Detection.</p>	



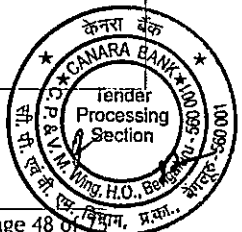


		2) Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory & HDD by SMTP.	
19	System Management Solution	<p>1. The system management solution is required. The system management solution should collect system information (including impending component failure) from the device that generated the alert and sends the information securely to OEM to Support to troubleshoot the issue and provide an appropriate solution.</p> <p>2. The system management solution should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive. It should be capable of offering upgrade of software and patches from a remote client using Media/image/folder; It should support server power capping and historical reporting and should have support for multifactor authentication.</p> <p>3. The system management solution should be provided:</p> <p>a. Firmware and configuration baselines for compliance monitoring</p>	





		<p>and enable automated updates on schedule.</p> <p>b. Scope based access control to limit Users to specific group of devices</p> <p>c. Bare-metal server deployment</p> <p>d. Power and thermal Monitoring, alarm, and automatically execute rules-based remediation.</p> <p>e. Manage remote devices and control power</p>	
20	Monitoring and Analytics	<p>1.Offered servers shall have monitoring an analytics engine for proactive management. All required licenses for same shall be included in the offer.</p> <p>2.Monitoring and analytics engine shall have the capability to provide the following:</p> <p>i.Health and system security monitoring and notification emails</p> <p>ii.Performance monitoring and anomaly detection</p> <p>iii.REST API for integrating data with automation, ticketing, and other tools</p> <p>iv.Visualize server telemetry including key performance,</p>	





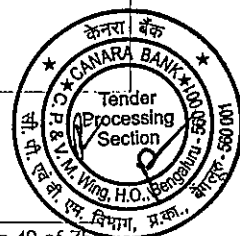


		environmental, and power metrics  v.Displays heath, inventory, alerts, performance, and warranty status	
21	Drivers & Accessories	Drivers for the compatible OS, Add on cards and other accessories to be Provided.	
22	FAN	Server should have redundant fully populated Hot swappable fans	

Table-E

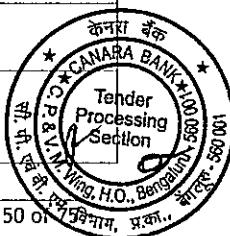
Technical Specification - 10 servers (5 DC and 5 DRC)

Technical Details		Technical Specification 10- Analytical Projects Server ( 5 DC and 5 DR)	Bidder's Compliance (Yes/No)
Sl. No.	Technical Factor	Description	
1	Make	Bidder to specify	
2	Model	Bidder to specify	
3	Power Factor	Bidder to specify	
4	Form Factor	2U	
5	Processor		
	Processor Architecture	CISC	
	Processor Make	Latest generation x86_64 bit architecture-based CPU's	



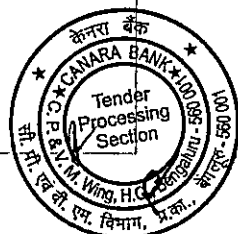


	Processor	2.8GHz (gigahertz) or above	
	Socket	Minimum 2 populated sockets i.e., 24*2 =48 core	
	Cores per socket	24	
	Cache	60 MB L3 Cache or higher	
	Cooling	Heat Sink	
	Platform Controller Hub & Main Board	Latest Chipset / System on Chip (SoC) design. Supporting x86_64 & Suitable server class Main Board or equivalent	
6	Memory		
	RAM Type	DDR5 DIMM or Higher	
	Ram Size	128GB*4(64GB*8) = 512 GB	
	Slot Count	Minimum 24 or higher, Minimum 8 free memory slots should be available.	
	Speed	Minimum 5200 MT/s (Megatransfer per second) or higher (memory speed should be compatible with process speed to provide better performance)	
	Features	Advanced ECC (Error Correcting Code) type or similar technology	
7	SSD		
	Types of interface for SSD	SAS/NVMe	



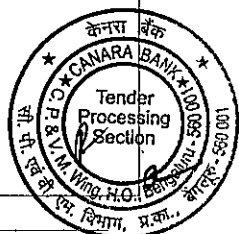


	Total Capacity for SSD	2 x 960 GB for OS; (to support RAID 1) 6 x 1.92 TB for data (Raw)	
	Slot Count	16 or higher, Minimum 2 free slots should be available for future upgrade	
	Raw Space	Minimum 7 +TB approx. (Raw Disk Storage for data) 2 x 960 GB for OS (RAID) 6 x 1.92 TB for data	
8	RAID Controller		
	RAID Controller	Should support RAID 1, 5, 6, 10 or higher	
	RAID Battery	RAID 1, 5, 6, 10 or higher with 4GB or higher battery backed write cache	
	Alarm Buzzer	Alarm Buzzer or error indication alerts or equivalent	
	Storage Health Inspector	Storage Health Inspector or tools to monitor Storage/disk health	
	Features	Automatic and configurable RAID Rebuilding / Single-RAID or Multi-RAID Arrays per Controller	



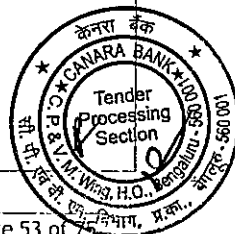


9	SAN & Network		
	FC HBA CARD	Two FC Card with 2 number of 32 Gbps FC ports in each card with Supported SFP+ transceivers ( With NVME Capable )	
	FC Cables	4 Nos of minimum 15 Meter OM3/OM4 FC cables or higher for SAN Connectivity (FC HBA & transceivers should Support 16 Gbps & 32Gbps Switch)	
	Network cards with port 1 Gbps	Two Network Cards, each equipped with at least Four 1-gigabit network ports ( Four Port of 1Gbase-T On-Board or separate NIC with supported four number of minimum 5 meter of compatible Cat6/Cat7 UTP Cable )	
	Network cards with 25 Gbps ports	Two Network Cards, each equipped with at least two 25-gigabit Fiber network ports (Total Four 25Gbps ports with four number of minimum 5 meter FC Cable)	
	Network cards Management port	Dedicate One Port of 1Gbps-management port chassis card with minimum 5 meter Cat6/Cat7 UTP Cable.	
10	OS & Hypervisor Compatibility		
	Virtualization compatibility	All latest version of Microsoft-HyperV, VMware, Red Hat virtualization, oracle virtualization, Open	



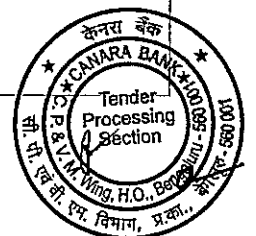


		shift virtualization and other industry standard hypervisors, Open Shift, Kubernetes.	
	Open Source compatibility	Open Source Linux KVM	
	Windows Compatibility	2019/2022	
	RHEL Compatibility	8.x & 9.x & Higher versions	
	Other Latest Linux Flavours	Latest server operating versions of SUSE Linux, Oracle Linux, Ubuntu ,RHCOS	
11	Power Supply	Redundant hot swappable power supply, with required power cables	
12	BIOS	UEFI (Unified Extensible Firmware Interface) based system and firmware that supports secure boot)	
13	Warranty And Support	3 Years onsite warranty+ 2 years AMC, On-Site Support Warranty including part replacement/repairs within 6 hours of reporting, and Software support for updates, upgrades, patches, and bug fixes for supplied s/w from OEM 24 x 7 x 365 days. SSD drives should be covered for irrespective of read/writes on them. In case of Disk failure, the faulty disk will be maintained /destroyed	



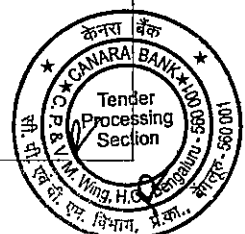


		/ Degauss by Canara Bank. Proactive storage monitoring & support from OEM should be enabled. The proposed bidder will need to ensure support of product & change of components @ zero cost in case of any part becoming obsolete/EOL & EOS. Faulty Disks would not be returned back to OEM/Vendor or faulty disks will be destroyed before returning.	
14	Port	1 USB 3.0 port or higher, 2 USB 2.0 port or higher and 1 VGA Port or higher	
15	Serviceability	Light path diagnostic LED or equivalent visual alerts	
16	Security	Silicon root of trust, authenticated BIOS, Signed firmware updates and BIOS Live scanning for malicious firmware, secure boot, TPM2.0 (Trusted Platform Module 2.0), Hardware root of trust, malicious code free design.	
17	PCI Slots	Minimum 8 PCIe Gen4 or higher free slots(Peripheral Component Interconnect Express)	



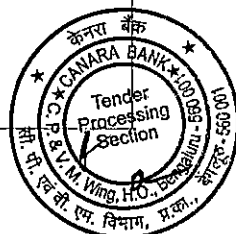


18	Remote Management	<p>1) Management of hardware and software components, Power on/off, boot process, Management log, dedicated Management ports. Should able to integrate with industry wide KVM (Kernel-based Virtual Machine) solution.</p> <p>Monitoring fan, power supply, memory, CPU, RAID, NIC for failures.</p> <p>Telemetry Streaming, Idle Server Detection.</p>	
		<p>2) Management software should provide Role Based Security through LDAP or Local and able to provide pre-failure alarms for CPU, Memory &amp; HDD by SMTP.</p>	
19	System Management Solution	<p>1. The system management solution is required. The system management solution should collect system information (including impending component failure) from the device that generated the alert and sends the information securely to OEM to Support to troubleshoot the issue and provide an appropriate solution.</p>	

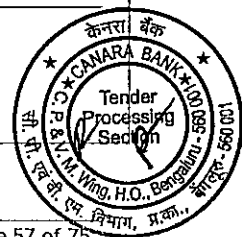




		<p>2. The system management solution should support browser based graphical remote console along with Virtual Power button, remote boot using USB/CD/DVD Drive. It should be capable of offering upgrade of software and patches from a remote client using Media/image/folder; It should support server power capping and historical reporting and should have support for multifactor authentication.</p> <p>3. The system management solution should be provided:</p> <p>a. Firmware and configuration baselines for compliance monitoring and enable automated updates on schedule.</p> <p>b. Scope based access control to limit Users to specific group of devices</p> <p>c. Bare-metal server deployment</p> <p>d. Power and thermal Monitoring, alarm, and automatically execute rules-based remediation.</p>	
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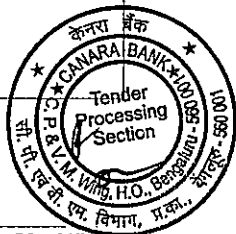




		accessories to be Provided.	
22	FAN	Server should have redundant fully populated Hot swappable fans	

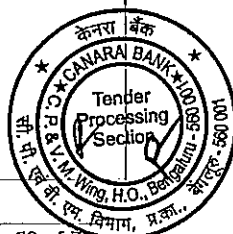
**Table-K**  
**Technical Specification of Network TOR Switches**

Sl. No.	DC and DRC Switch Technical Specification:	Compliance(Y/N)
A	2 numbers (01 numbers in DC and 01 numbers in DRC) - Mgmt.	
1.	Switch must have minimum 24 Gig Ethernet ports and 4 x 10G SFP for uplink on single switch/chassis.  Bidder should provide compatible SFPs & QSFP 40G to SFP-10G adaptors/Connectors for connecting uplinks at core/distribution switch with QSFP 40/100G slots	
2.	Switching capacity should be equal to greater than 100 Gbps.	
3.	Mac address table size should be equal to greater than 16000.	
4.	Switch must be supplied with compatible Trans receiver for Fiber ports and should be from same OEM.	
5.	Switch must have redundant Power Supply.	
6.	Switch should have USB/Ethernet management interfaces.	
7.	Switch should have minimum Flash memory 128 Mb.	
8.	Switch should have minimum DRAM 512 Mb.	
9.	Switch should be managed in an IPv6 network(IPv6 Device IP)	



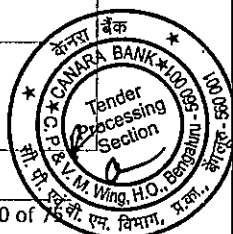


10.	Switch should support Dual stack (IPv4 and IPv6) transitions from IPv4 to IPv6, support connectivity for both protocols	
11.	Switches should support Spanning Tree Protocol (STP)	
12.	Switch should support link aggregation control protocol (LACP) and port trunking.	
13.	Switch should support VLAN support and tagging support IEEE 802.1Q.	
14.	Switch should support Simple Network Management Protocol (SNMPv2 and SNMPv3).	
15.	Implement Access Lists on the switch to ensure SNMP access only to the SNMP manager or the NMS workstation.	
16.	Switch should support duplicates port traffic (ingress and egress) to a local or remote monitoring port.	
17.	Implementation of multiple Privilege Levels should be supported.	
18.	Switch should Support for authentication, authorization, and accounting (AAA) using RADIUS and TACACS+.	
19.	Switch should support FTP, TFTP, and SFTP.	
20.	Switch should support Extensive debugging capabilities to assist in hardware/Configuration problem resolution, should supports ping and traceroute for both IPv4 and IPv6.	
21.	Switch should support integration for Network Time Protocol (NTP), SIEM.	
22.	The Switch must be able to generate Syslog Messages with timestamp, which can be exported to a Syslog Server.	
23.	The Switch shall integrate with centralized network management software.	
24.	The Switches must be supplied with Compatible Power cables for the PDU supplied with the rack.	
25.	The switch shall have management, security features like SSHv2 / Secure copy, encrypted user passwords, and authentication via AAA and RADIUS / TACACS+ to prevent unauthorized management access"	



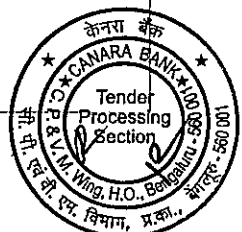


26.	Switch should have Custom banner display.	
27.	High Mean Time Between Failure values (>2 Lakh hours) should be available to ensure long life of switch hardware.	
28.	Proposed Switches must integrate seamlessly with active - active ports for redundancy and high availability from two core/distributed switches from day one with our existing infrastructure of Cisco/Juniper Datacenter router/switches with all network open standard protocols.	
29.	24*7*365 days Technical support with response time of 30 minutes.	
30.	Four hours RMA support in case of any hardware failure.	
B.	4 numbers (2 DC+ 2 DRC) - Ethernet/LAN	Compliance(Y/N)
1.	Switch must be Data Center grade switch. Switch should be configurable/deployable with other switches to utilize all available links through multi-path forwarding.	
2.	Switch must have 24 x 25-Gbps fiber downlink ports and 4 x 100-Gbps Quad Small Form-Factor Pluggable 28 (QSFP28) uplink ports with fully populated trans receivers on single switch/chassis.	
3.	24 downlink ports should be configured to work as 25 Gbps.	
4.	Switch should support EVPN and Virtual Extensible LAN (VXLAN) to create Fabric. Fabric should be capable to integrate with SDDC like Open stack, VMWare etc. Switch should support In Service Software Upgrade.	
5.	Switch throughput should be more than equal to 2 bpps.	
6.	Latency should be less than 1 microsecond. (1ms Latency refers to that a switch contributes to process a packet.)	
7.	Mac address table size should be equal to greater than 2 lakhs.	
8.	Switch should support more than 4000 Vlans.	
9.	Switch must be supplied with compatible Trans receiver for all Fiber ports and should be from same OEM.	





10.	Switch must have redundant Fan and Power Supply.	
11.	Switch should provide flexibility for 25GbE top-of-rack deployment.	
12.	Switch should have USB/Ethernet management interfaces.	
13.	Switch should be managed in an IPv6 network(IPv6 Device IP)	
14.	Switch should support Dual stack (IPv4 and IPv6) transitions from IPv4 to IPv6, support connectivity for both protocols	
15.	Switches should support creation of one virtual resilient switch from up to two switches by using standard LACP for automatic load balancing and high availability or by other equivalent method.	
16.	Switches should support Spanning Tree Protocol (STP)	
17.	Switch should support link aggregation control protocol (LACP) and port trunking IEEE 802.1AX-2008.	
18.	Switch should support VLAN support and tagging support IEEE 802.1Q.	
19.	Switch should support Simple Network Management Protocol (SNMPv2 and SNMPv3).	
20.	Implement Access Lists on the switch to ensure SNMP access only to the SNMP manager or the NMS workstation.	
21.	Switch should support duplicates port traffic (ingress and egress) to a local or remote monitoring port.	
22.	Implementation of multiple Privilege Levels should be supported.	
23.	Switch should Support for authentication, authorization, and accounting (AAA) using RADIUS and TACACS+.	
24.	Switch should support FTP, TFTP, and SFTP.	
25.	Switch should support Extensive debugging capabilities to assist in hardware/Configuration problem resolution, should supports ping and traceroute for both IPv4 and IPv6.	



26.	Switch should support integrate Network Time Protocol (NTP), SIEM	
27.	The Switch must be able to generate Syslog Messages with timestamp, which can be exported to a Syslog Server.	
28.	The Switch shall integrate with centralized network management software.	
29.	The Switches must be supplied with Compatible Power cables for the PDU supplied with the rack.	
30.	The switch shall have management security features like SSHv2 / Secure copy, encrypted user passwords, and authentication via AAA and RADIUS / TACACS+ to prevent unauthorized management access"	
31.	Proposed Switches must integrate seamlessly with active - active ports for redundancy and high availability from two core/distributed switches from day one with our existing infrastructure of Cisco/Juniper Datacenter router/switches with all network open standard protocols.	
32.	Switch should have Custom banner display.	
33.	High Mean Time Between Failure values (>2 Lakh hours)should be available to ensure long life of switch hardware.	
34.	24*7*365 days Technical support with response time of 30 minutes.	
35.	Four hours RMA support in case of any hardware failure.	

Below table to be consider to provide uplink for above access switches as minimum cabling requirement.

Fiber(OM4)		
Length	DRC Qty	DC Qty
30M	10	10
20M	10	
15M		10
10M	10	10

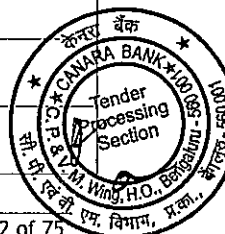
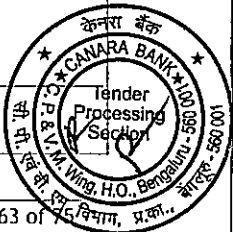


Table-ITechnical Specification of server racks (2 Nos at DC - Single Phase)

Sl. No.	Particulars	Detailed Configuration(DC)	Bidder's Compliance
			Yes/No
1.	Make	Bidders to specify	
2.	Model	Bidders to specify	
3.	Power Factor	PDU Single Phase with 63A Server rack mount power distribution unit 1Ph,230V,63A 50/60Hz with redundancy.	
4.	Form Factor	42 U Rack Frame with all necessary side panels	
5.	Colour	Black Colour	
6.	Wheels	Rack wheels for rack movement	
7.	Rack Size	600 mm*1200mm *2100mm (600mm - Width , 1200mm Depth , 2100mm Height)	
8.	Lock Mechanism	Mechanical lock with key for both front and back door	
9.	PDU Socket details	Zero U standard with minimum 20 x C13 (20 power sockets with C13 type) and minimum 4 x C19 (4 power socket with C19 type) Per PDU  Dual PDU should be made available for each rack	
10.	Over load protection MCB	PDU rating approximate 14KVA per PDU for single phase with 63A (4 MCB)	
11.	Bottom feed	Minimum 3 Meters IEC 309 input plug top	
12.	Others	Levelers Required Ganging kits and necessary tool for mounting PDU with side doors and necessary Cable organizer. Adjustable screw legs - 4 No.  Rack filler to be provided upto half rack size.	
13.	Fan	fans on the top side of rack (desirable)	



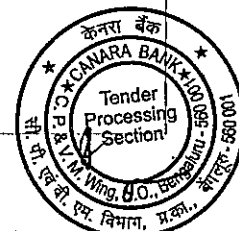


14.	Compatibility	Rack should be compatible to mount all the hardware's supplied in this RFP	
15.	Cable Loops	Minimum Eight cable loops to be provided per rack for cable dressing	
16.	Certification	UL certified	
17.	Mounting	The bidder shall have to mount new as well as existing servers and other devices in the rack and will have to provide the rack mounting kit accordingly	
18.	Grounding	Copper based Electrical Grounding / Earthing Strip	

Table-J

### Technical Specification of server racks (2 Nos with three phase at DR)

Sl. No.	Particulars	Detailed Configuration(DR)	Bidder's Compliance Yes/No
1.	Make	Bidders to specify	
2.	Model	Bidders to specify	
3.	Power Factor	PDU Three Phase with 32A Server rack mount power distribution unit 3Ph,230V,32A 50/60Hz with redundancy.	
4.	Form Factor	45 U Rack Frame with all necessary side panels	
5.	Colour	Black Colour	
6.	Wheels	Rack wheels for rack movement	
7.	Rack Size	600 mm*1200mm (600mm - Width , 1200mm Depth)	
8.	Lock Mechanism	Mechanical lock with key for both front and back door	
9.	PDU Socket details	Zero U standard with minimum 20 x C13 (20 power sockets with C13 type) and minimum 4 x C19 (4 power socket with C19 type) Per PDU. Dual PDU should be available for each rack.	







10.	Over load protection MCB	16A MCB X 2 circuits - PDU rating approximate 22KVA	
11.	Bottom feed	Minimum 3 Meters IEC 309 input plug top	
12.	Others	Levelers Required Ganging kits and necessary tool for mounting PDU with side doors and necessary Cable organizer.  Rack filler to be provided upto half rack size.	
13.	Fan	fans on the top side of rack (desirable)	
14.	Compatibility	Rack should be compatible to mount all the hardware's supplied in this RFP	
15.	Cable Loops	Minimum Eight cable loops to be provided per rack for cable dressing	
16.	Certification	UL certified	
17.	Mounting	The bidder shall have to mount new as well as existing servers and other devices in the rack and will have to provide the rack mounting kit accordingly	
18.	Grounding	Copper based Electrical Grounding / Earthing Strip	

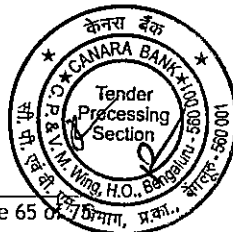
We comply with the above Technical and Functional requirements, Non-compliance to any of the above requirement will lead to disqualification of the bidder in Technical proposal.

Date:

Signature with Seal

Name:

Designation:



Annexure-16

Bill of Material

SUB: Supply, Installation, Configuration, Implementation and Maintenance of 40 nos. of servers and related it infra components for Data Lakehouse and existing Analytical Setup in Canara Bank

Ref: GEM/2024/B/5538001 dated 23/10/2024.

Notes

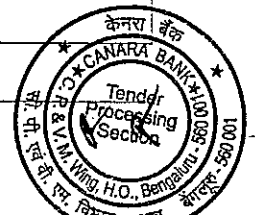
1. These details should be on the letter head of Bidder and each & every page should be signed by an Authorized Signatory with Name and Seal of the Company.
2. Please be guided by RFP terms, subsequent amendments and replies to pre-bid queries (if any) while quoting.
3. Do not change the structure of the format nor add any extra items.
4. No counter condition/assumption in response to commercial bid will be accepted. Bank has a right to reject such bid.

Table - A

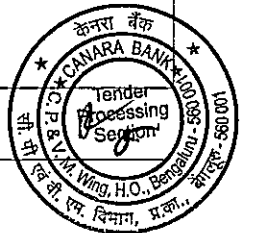
Price details of Hardware Items

[Amount in Indian Rupees]

Sl. No.	Item Details	Unit Price with Three years Comprehensive onsite warranty and support (Excl. of Taxes)	Qty.	Total Cost Price with Three years Comprehensive onsite warranty and support (Excl. of Taxes)	Tax for Column c		Total Cost Price with Three years Comprehensive onsite warranty and support (Incl. of Taxes)
		a		c=a*b	% of Tax	Tax Amt.	f=c+e
1.	(Annexure-9 - Table A - Tech Specs 12 Data Fabric ( 6 DC and 6 DR))		12				



Sl. No.	Item Details	Unit Price with Three years Comprehensive onsite warranty and support (Excl. of Taxes)	Qty.	Total Cost Price with Three years Comprehensive onsite warranty and support (Excl. of Taxes)	Tax for Column c		Total Cost Price with Three years Comprehensive onsite warranty and support (Incl. of Taxes)
		a		c=a*b	% of Tax	Tax Amt. e=c*d	f=c+e
2.	(Annexure-9 - Table B- Technical Specification for 8 servers -ML OPS MASTER and Runtime ( 4 DC and 4 DR)		8				
3.	(Annexure-9 - Table C- Technical Specification 2 - MLWorker Nodes-GPU ( 1 DC and 1 DR)		2				
4.	(Annexure-9 - Table D- Technical Specification for 8 ML Worker Nodes ( 4 DC and 4 DR)		8				
5.	(Annexure-9 - Table E- Technical Specification for 10-Analytical projects Server ( 5 DC and 5 DR)		10				
6.	(Annexure-9 - Table K- Technical Specification of Network TOR Switches  Mgmt - 2 number (1 in DC and 1 in DR)		6				



Sl. No.	Item Details	Unit Price with Three years Comprehensive onsite warranty and support (Excl. of Taxes)	Qty.	Total Cost Price with Three years Comprehensive onsite warranty and support (Excl. of Taxes)	Tax for Column c		Total Cost Price with Three years Comprehensive onsite warranty and support (Incl. of Taxes)
					% of Tax	Tax Amt.	
		a	b	c=a*b	d	e=c*d	f=c+e
	Ethernet/LAN - 4 numbers (2 DC and 2 DRC)						
7.	(Annexure-9 - Table I- Technical Specification of server racks (2 Nos at DC - Single Phase)		2				
8.	(Annexure-9 - Table J- Technical Specification of server racks (2 Nos with three phase at DR		2				
9.	Total Cost for Hardware (Sum of Sl. No. 1 to 8)						

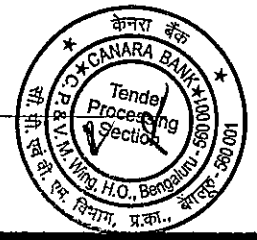


Table - B

Price details of Software/License Items (Perpetual)

[Amount in Indian Rupees]

Sl. No.	Item Details	Unit Price with Comprehensive warranty and support (Excl. of Tax)	Qty.	Total Cost with Comprehensive warranty and support (Excl. of Tax)	Tax for Column c		Total Cost with Comprehensive warranty and support (Incl. of Tax)
					% of Tax	Tax Amt.	
		a	b	c=a*b	d	e	f=c+e
1.	Windows 2022 Standard Edition 16 Core pack with software assurance (upgrades/patches/bug fixes etc) during warranty and ATS period		4				
2.	Total Cost for Software/Licenses (Sum of Sl. No. 1 to 1)						

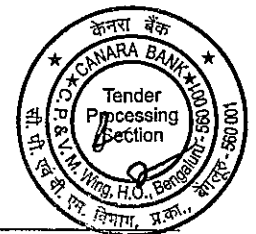


Table - C

Price details of Software/License Items (Subscription based Licenses)

[Amount in Indian Rupees]

Sl. No.	Item Details	Unit Price with Comprehensive warranty and support for 5 Years (Excl. of Tax)	Qty.	Total Cost with Comprehensive warranty and support for 5 Years (Excl. of Tax)	Tax for Column c		Total Cost with Comprehensive warranty and support for 5 Years (Incl. of Tax)
		a		c=a*b	% of Tax	Tax Amt.	f=c+e
1.	RHEL for Virtual Datacenter 2 Sockets 5 year subscription 24x7 support E-LTU with premium support		12				
2.	RHEL for Linux server 2 Sockets or 2 Guests 5 year subscription 24x7 support E-LTU with premium support		32				
3.	Total Cost (Sum of Sl. No. 1 to 2)						

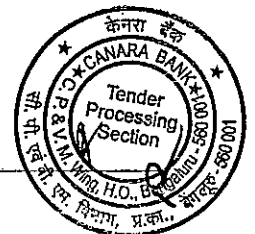


Table - D

AMC /ATS Cost for Hardware/Software/Licenses for 2 Years on post warranty

[Amount in Indian Rupees]

Sl. No.	Item Details	Cost for AMC for 2 years (Excl. of Tax)		Qty.	Total AMC Cost (Excl. of Tax)	Tax for Column d		Total AMC Cost (Incl. of Tax)
		4 <sup>th</sup> Year	5 <sup>th</sup> Year			% of Tax	Tax Amt.	
		a	b			e	f=d*e	
A.	Hardware							
1.	(Annexure-9 - Table A - Tech Specs 12 Data Fabric ( 6 DC and 6 DR))			12				
2.	(Annexure-9 - Table B- Technical Specification for 8 servers -ML OPS MASTER and Runtime ( 4 DC and 4 DR)			8				
3.	(Annexure-9 - Table C- Technical Specification 2 - MLWorker Nodes-GPU ( 1 DC and 1 DR)			2				
4.	(Annexure-9 - Table D- Technical Specification for 8 ML Worker Nodes ( 4 DC and 4 DR)			8				

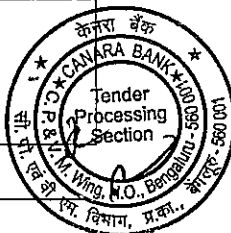




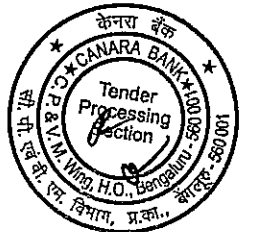


Table - E

One-time Implementation charges

[Amount in Indian Rupees]

Sl. No.	Item Details		Unit Price (Excl. of Tax)	No. of Units	Total Price (Excl. of Tax)	Tax for Column c		Total Price (Incl. of Tax)
			a			% of Tax	Tax Amt.	
				b	c=a*b	d	e=c*d	f=c+e
1.	Servers Installation and Configurations with OS	Per Server		40				
2.	Installation of Network TOR switches	Per Switch		6				
3.	Server Rack implementation	Per Rack		4				
	Total Cost for Optional Items (Sum of Sl. No. 1 to 15)							



**Table - F**

Charges for Onsite Resources (During the Contract period period)

[Amount in Indian Rupees]

Sl. No.	Requirement Details	Charges Per month per resource	No. of Resources	No. of Months	Charges for 60 months	Tax for Column C		Total Charges for 60 Months
		(Excl. of taxes)			(Excl. of taxes)	% tax	Tax Amt.	(Incl. of taxes)
		a	n	b	c=a*b*n	d	e=c*d	f=c+e
1.	L2 Onsite resource as specified in the scope of the RFP.		1	60				
2.	Total Cost of Onsite Resources							

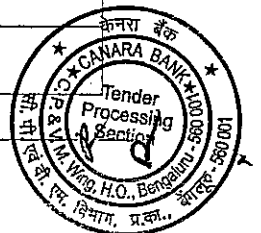
**Note:** The addition/ deletion of resource (optional) will be availed by the Bank based on the requirement of resources during the contract period of five years. Bank shall intimate the same as and when the requirement arises.

Table - G

**Total Cost of the Hardware, Software, Implementation and Onsite Resource cost for 5 Years**

[Amount in Indian Rupees]

Sl. No.	Requirement Details	Total Cost of the Hardware, Software, implementation and Onsite Resource for 5 Years (Incl. of Taxes)
1.	Total cost of Table-A (Price details of Hardware Items)	



2.	Total cost of Table-B (Price details of Software/License Items (Perpetual))	
3.	Total cost of Table-C (Price details of Software/License Items (Subscription based))	
4.	Total cost of Table-D (AMC /ATS Cost for Hardware/Software/Licenses)	
5.	Total Cost of Table-E (One time implementation charges)	
6.	Total Cost of Table-F (Charges for Onsite Resources)	
7.	Total Cost of Ownership for 5 Years (Sum of Sl. No. 1 to 6)	

**Declaration:**

- Bill of material is submitted on the letter head and is signed by an Authorized Signatory with Name and Seal of the Company.
- We confirm that we have gone through RFP clauses, subsequent amendments and replies to pre-bid queries (if any) and abide by the same.
- We have not changed the structure of the format nor added any extra items. We note that any such alternation will lead to rejection of Bid.
- We agree that no counter condition/assumption in response to commercial bid will be accepted by the Bank. Bank has a right to reject such bid.
- We are agreeable to the payment schedule as per "Payment Terms" of the RFP.

Date:

Place:

Authorized signatory

Name:

